Modified SHT Debond Detectors Delivered to Pearl Harbor Naval Shipyard for In-service Use

Status: Pending Implementation

PROBLEM / OBJECTIVE

Special Hull Treatment (SHT) on Virginia class submarines (VCS) must be inspected for debonded areas during new construction and each docking availability. The manual tap inspection method is time-consuming and subjective. To minimize effort and to remove subjectivity, the Navy Metalworking Center (NMC) developed a debond detector under a previously funded Navy ManTech project (S2363) for use during new construction. In a subsequent project (R2607), NMC modified the debond detector design for use on "in-service" assets. NMC delivered demonstration units to PMS 392, who demonstrated the units at Pearl Harbor Naval Shipyard (PHNSY) and Intermediate Maintenance Facility (IMF). PHNSY and IMF requested modifications to the unit due to their unique requirements. This project's objective was to incorporate PHNSY and IMF improvement requests to the unit and deliver three debond detectors to them.

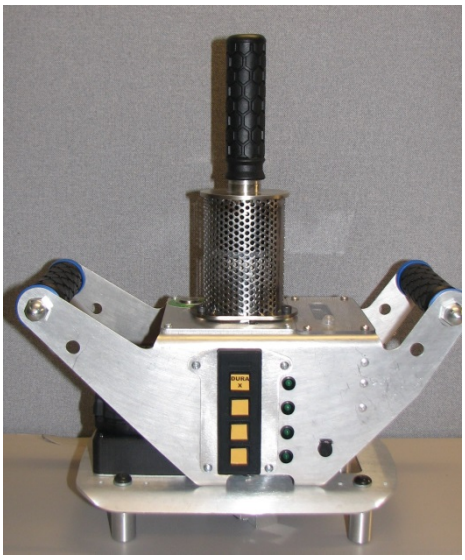
ACCOMPLISHMENTS / PAYOFF

Process Improvement:

NMC addressed the modifications requested by PHNSY and IMF: decrease the force required to activate the unit, remove the ball bearing wheels, and reposition the handle over the solenoid to improve operator ease of use. By removing the rollers on the bottom of the debond detector and replacing them with solid blocks, vibrations can more efficiently transfer from the surface to the accelerometers, allowing for a reduction in activation force. NMC also added a handle on top of the unit. NMC updated the drawing package and procured or manufactured all of the necessary mechanical components. NMC subcontracted the electronics fabrication to Rentz Technology Systems of Johnstown, PA. NMC assembled the units, tested them for proper operation and shipped them to PHNSY.

Implementation and Technology Transfer:

Three debond detectors were delivered directly to PHNSY and IMF for use on VCS hulls during future availabilities. These units will be used to perform initial inspection to identify debonded areas of SHT.



A modified debond detector will support SHT inspection operations at Pearl Harbor Naval Shipyard. (NMC photo)

Expected Benefits and Warfighter Impact:

- Eliminate operator subjectivity during in-service VCS debond inspection
- Reduce the level of training required for inspectors
- Save an estimated 100 labor-days per hull
- Reduce false positive inspection results

TIME LINE / MILESTONE

Start Date:	February 2016
End Date:	May 2016

FUNDING

Navy ManTech Investment:	$0
Cost Share (PHNSY):	$75K

PARTICIPANTS

PHNSY and IMF
Rentz Technology Systems
NMC
ONR Navy ManTech

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